

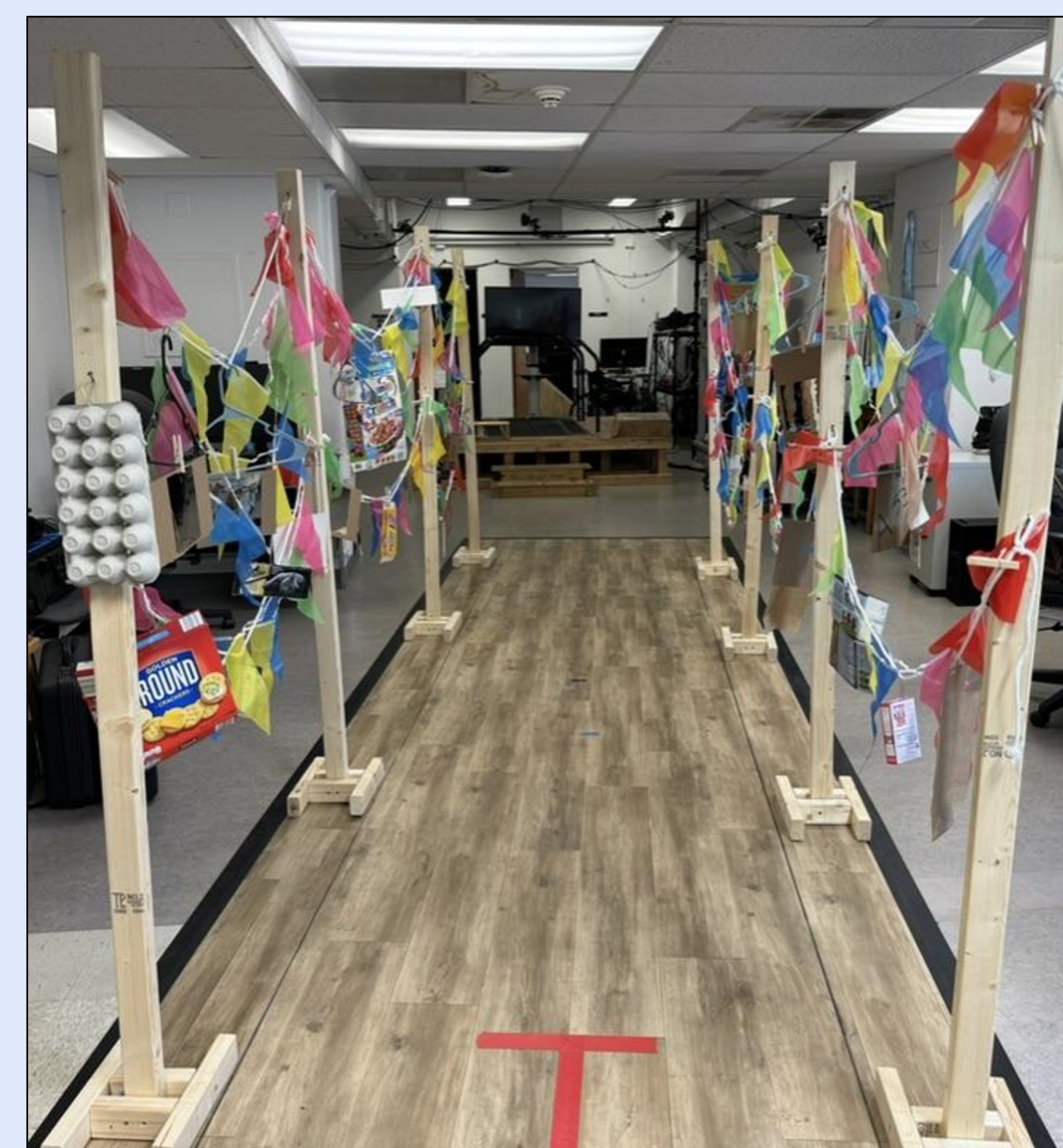
INTRODUCTION

- People with Parkinson disease (PD) often struggle with the task of starting to walk (termed gait initiation)
- Gait initiation has characteristics that differ from continuous walking:
 - Greater postural control requirement
- Postural control requires increased sensory processing, including:
 - Vision
 - Vestibular
 - Somatosensation
- People with PD are more dependent on visual input to maintain static balance than unimpaired older adults (Kitamura, 1993).
- This suggests that **attention and sensory capacity** may influence gait initiation.
- The purpose of this study is to evaluate the impact of visual stimuli and motor-cognitive dual tasking during gait initiation in unimpaired older adults.
- These findings will offer insight into how visual stimuli and cognitive tasks can potentially alter gait initiation in people who have PD by evaluating their effect in unimpaired older adult participants.

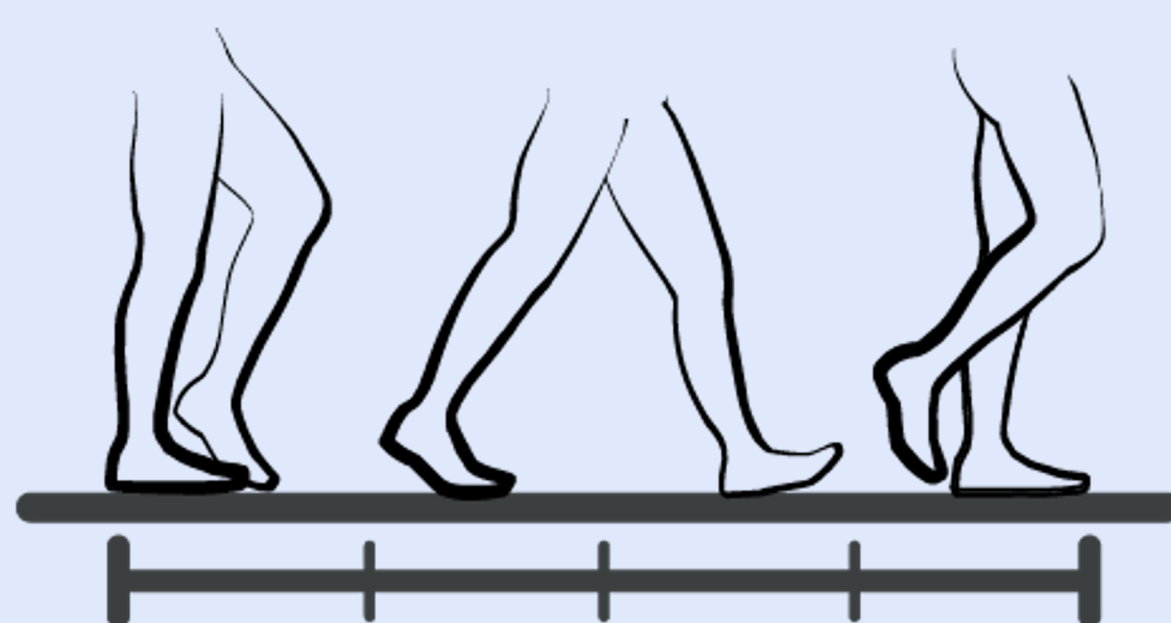
METHODS

- Data from 5 unimpaired older adults between the ages of 55 and 85 years
- A pressure-sensing mat was used to collect gait parameters under four different visual conditions and dual and single task scenarios (4 x 2 design)
- The dual task involved participants repeating back a series of randomly generated numbers after two passes on the 20-foot-long pressure sensing mat

Baseline



OUTCOME MEASURE

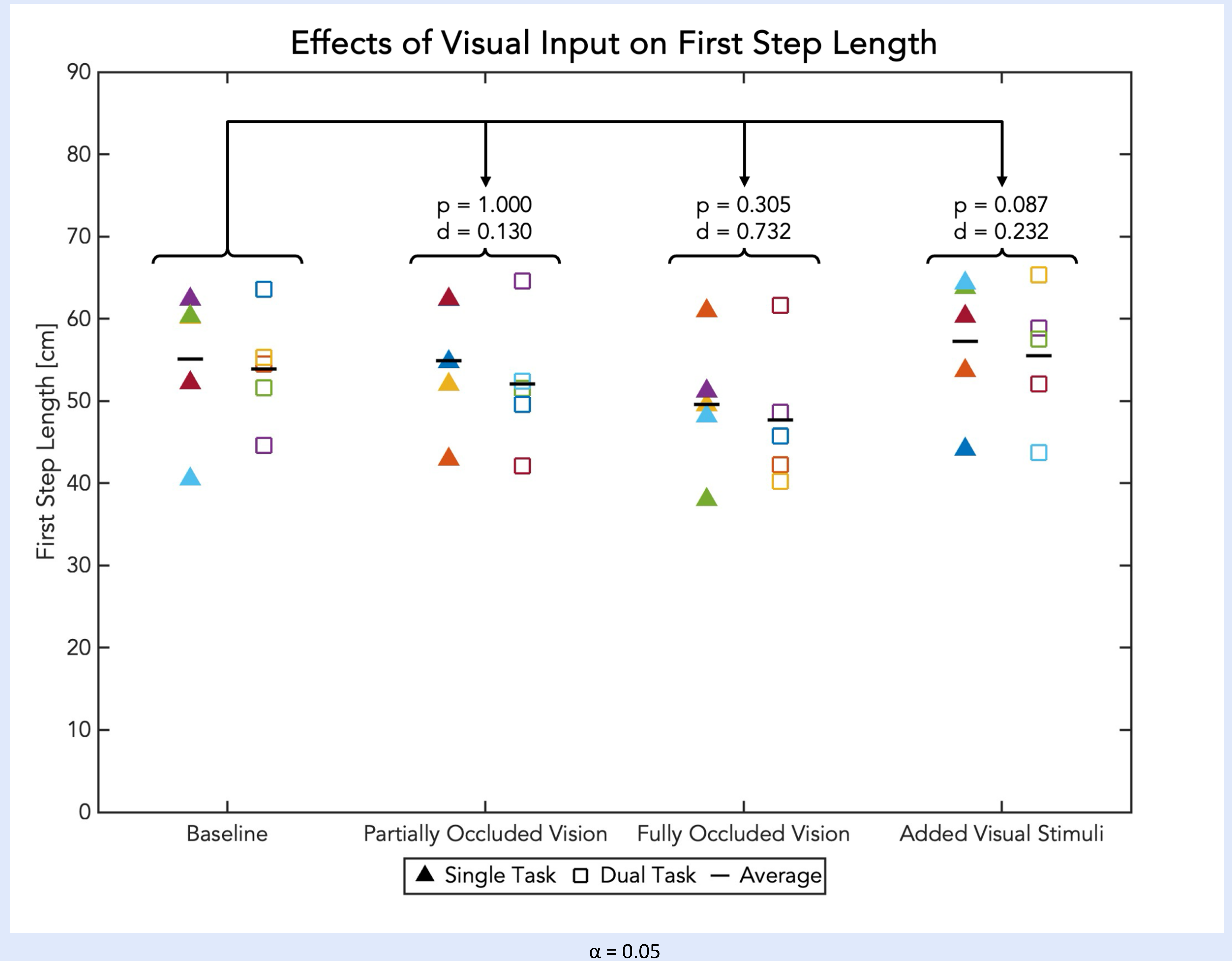


First Step Length (cm)

DATA MANAGEMENT

- 1 Retrieve data from pressure sensing mat
- 2 Compile and visualize data for each condition
- 3 Conduct a repeated measures ANOVA test using SPSS

RESULTS



CONCLUSION & FUTURE DEVELOPMENT

- Analysis of participants' first step length under the baseline condition compared to the remaining three visual conditions produced statistically insignificant p-values and no effect was detected between single and dual task scenarios.
- However, analysis of the Cohen's d between the baseline and the fully occluded vision condition revealed a large effect size. Although not different, these data may suggest that the first step length decreases under full visual occlusion compared to baseline.
- In contrast, the added visual stimuli may create longer steps compared to baseline, although this increase was fairly small.
- Additional participant recruitment is necessary to increase the statistical power of the data analysis, and further review of gait parameters must be conducted to evaluate the effect of single versus dual task on gait initiation.

REFERENCES

- Bloem, B. R., Okun, M. S., & Klein, C. (2021). Parkinson's disease. *The Lancet*, 397(10291), 2284-2303. [https://doi.org/10.1016/S0140-6736\(21\)00218-X](https://doi.org/10.1016/S0140-6736(21)00218-X)
- Kitamura J, Nakagawa H, Iinuma K, et al. Visual influence on center of contact pressure in advanced Parkinson's disease. *Arch Phys Med Rehabil*. 1993;74(10):1107-1112.